

cm What is claimed is:

Sub 302
5 1. A synthetic pulmonary surfactant comprising a pharmaceutically acceptable phospholipid admixed with a polypeptide comprising at least 10 amino acid residues and no more than about 60 amino acid residues, said polypeptide including a sequence having alternating hydrophobic and hydrophilic amino acid residue regions represented by the formula $(Z_a U_b)_c Z_d$, wherein:

10 Z is a hydrophilic amino acid residue independently selected from the group consisting of R and K;

U is a hydrophobic amino acid residue independently selected from the group consisting of V, I, L, C, Y and F;

15 a has an average value of about 1 to about 5;
b has an average value of about 3 to about 20;

c is 1 to 10; and

d is 1 to 3;

20 said polypeptide, when admixed with a pharmaceutically acceptable phospholipid, forming a synthetic pulmonary surfactant having a surfactant activity greater than the surfactant activity of the phospholipid alone.

25 2. The synthetic pulmonary surfactant of claim 1 wherein said polypeptide has an amino acid residue sequence represented by the formula:

KL L L L K L L L L K L L L L K L L L L K SEQ ID No 1

30 3. A method of treating respiratory distress syndrome comprising administering a therapeutically effective amount of a synthetic pulmonary surfactant, said surfactant comprising a pharmaceutically acceptable phospholipid admixed with an effective amount of a polypeptide comprising at least 10 amino acid residues and no more than about 60 amino acid residues, said polypeptide including a sequence having
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alternating hydrophobic and hydrophilic amino acid residue regions represented by the formula $(Z_a U_b)_c Z_d$, wherein:

5 Z is a hydrophilic amino acid residue independently selected from the group consisting of R and K;

U is a hydrophobic amino acid residue independently selected from the group consisting of V, I, L, C, Y and F;

10 a has an average value of about 1 to about 5;
b has an average value of about 3 to about 20;

c is 1 to 10; and
d is 1 to 3;

15 said polypeptide, when admixed with a pharmaceutically acceptable phospholipid, forming a synthetic pulmonary surfactant having a surfactant activity greater than the surfactant activity of the phospholipid alone.

20 4. The method of treating respiratory distress syndrome described in claim 3 wherein said polypeptide has an amino acid residue sequence represented by the formula:

KL L L L K L L L L K L L L L K L L L L K

SEQ ID NO 1

25 5. A polypeptide whose amino acid residue sequence is represented by the formula:

KL L L L K L L L L K L L L L K L L L L K

SEQ ID NO 1

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